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Davidson, Davidson & Kappel, LLC			EXAMINER	
485 7th Avenue			MONDT, JOHANNES P	
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New York, NY 10018			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,057

Applicant(s)

VERON, JEAN-LUC

Examiner

JOHANNES P. MONDT

Art Unit

3663

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-25 and 30-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-25 and 30-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Amendment filed October 19, 2010, forms the basis for this Office action. In said Amendment applicants substantially amended all previously pending claims 23-25 and 30-33 through amendment of independent claims 23, 32 and 33, and added new claim 34. Accordingly claims 23-25 and 30-34 are being examined. Comments on Remarks are included below under "Response to Arguments".

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 23-25, 30 and 31** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "moving each capsule" "from the at least one loading location" is new matter because each capsule is only loaded at a single location as described in the specification-as-filed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 23-25, 30 and 31** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention. The metes and bounds of the claimed invention are vague and ill-defined due to inadequate written support as a result of the introduction of new matter as explained above in section 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. ***Claims 23, 30, 31, 32 and 34*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kraus et al (DE 196 40 393 A1 (see IDS; previously cited), in view of Applicant's Admitted Prior Art (henceforth referred to as "AAPA"; previously cited), Georgii (WO03/065380 A1) (previously cited) and Beneck et al. (US 4,731,219), or, in the alternative, over Kraus et al, in view of AAPA, Georgii et al, Wachter (US 4,889,680) (previously cited) and Beneck (US 4,731,219). Regarding claims 23, 30 and 31 the rejection is subject to the noted indefiniteness under 35 U.S.C. 112, second paragraph, as set forth above in section 3, and is given to the best of examiner's understanding.

On claims 23 and 32: Kraus et al teach a method of packaging leaky fuel rods (col. 1, lines 3-38) for at least one of transport and storage, namely: for transport (col. 1, l. 55-63), each leaky fuel rod containing fuel material in tubular cladding ('Hüllrohr' 12a) (col. 3, l. 20) and being closed at ends of the tubular cladding and presenting a sealing defect (by virtue of being leaky ("schadenhaft", col. 1, l. 24). The limitation on where the

leaky fuel rods come from ("each leaky fuel rod coming from at least one fuel assembly") does not limit the method, but instead the intended use of the method. In this regard applicant is reminded that Applicant is reminded that intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art, which in this case it does not, considering that the fuel rod in Kraus is taken from a PWR reactor (col1. 2, l. 33+). In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963). Furthermore, Kraus et al teach their method to comprise:

making available a capsule 7, *capable* to receive a single leaky fuel rod, and comprising a tubular sheath 8 (col. 3, l. 8-14) and two end plugs 9 and 10 (col. 3, l. 8-14), at least one of the two end plugs configured to be removable

[Examiner Note: although the claimed invention is a method, the instant limitation "configured...." limits a structure, i.e., the "at least one of the two end plugs", and as such constitutes a limitation of possible intended use only. Applicant is reminded that intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the

prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963). In the end plug 9 a screw pattern is present, and hence the limitation of capability of being removed is met];

placing a loading structure 40 ("Köcher", i.e., quiver) in the pool (col. 4, l. 34+; Figure 4), in a disposition enabling the loading structure to receive at least one capsule with longitudinal axis in vertical position (in the vertical position defined as axial with respect to the fuel assembly), the loading structure having an open top end 53 ("Köcheröffnung, i.e., quiver opening: see col. 4, l. 58+). In response to applicant's traverse that "Kraus does not place the socket 40 in the pool", applicant appears to misinterpret the sentence in column 4 of Kraus et al as cited by examiner to mean that the water somehow is confined to the interior of the quiver. On the contrary, the "water" in Kraus is of such a spatial extent that underwater operation in a location requires creating under-pressure or vacuum locally and suctioning out the water (col. 1, l. 24-42). "Under water" thus clearly points to an extended body of water. Applicant's "pool" does not further distinguish over any spatially extended body of water, whether in size or in contiguity; should applicant disagree, examiner also notes that it would have been obvious to place the loading structure in the pool in view of Applicant's Admission of Prior Art, teaching that "leaky fuel rods are taken from the fuel assemblies, with these leaky rods being stored, for example, in temporary manner within the fuel pool. That water pool storage is also conventional for long-term storage is witnessed, for instance, by Wachter, who, in a patent on a method of withdrawing spent fuel rods from a nuclear fuel assembly, teaches long-term water pool storage of spent fuel rods as conventional

(col. 1, l. 50-59) The limitation is obvious because nothing more is involved than combining prior art elements according to known methods yielding predictable results (MPEP 2141, section III, rationale A for obviousness);

securing on the open top end of the loading structure a device 54 ("Flansch mit Richtvorrichtung", i.e., flange with provision to point or direct) capable of being used for loading a fuel rod into the capsule (Figure 4: col. 4, l. 58 –col. 5, l. 14), said device 54 having an opening ("Durchtrittsöffnungen" 59/60 or any single one thereof: see loc.cit. and col. 5, l. 2-43) and guide device "Richtvorrichtung", including "Richtrollen" (guiding rollers" 57/58; col. 4, l. 63 – col. 5, l. 14) *capable* of being placed at the opening of device 54;

inserting said leaky fuel rod 12 coming from a fuel assembly (Figure 1 and col. 2, l. 33-59) into an empty capsule 7 (see Figure 1 where fuel rods 6 and capsules 7 are illustrated) in the loading structure at one loading location (by definition the location at which the loading is conducted is the "loading location"), said inserting including: once ensuring an open position of plug 9 of capsule 7, inserting a defective rod into the capsule 7 via a guide device placed at the opening of the loading device (56-58: see Figure 4 and col. 4, l. 58 – col. 5, l. 14), and screwing the plug at the top end of the capsule into or back into place (col. 5, l. 52-55).

Kraus et al do not necessarily teach any of limitations on depositing the leaky fuel rods in a pool, making available a plurality of capsules and corresponding leaky rods as recited and unscrewing a plug of the capsule as a means to ensure the latter is in said open position.

However, it would have been obvious to include all of the other limitations not taught explicitly by Kraus in view of Georgii, who, in a patent document on a container device for shipping (i.e., transport) of radioactive fuel for nuclear reactors (page 1, lines 1-10), hence analogous art, teaches a device 10 for intermediate containment with a "very high degree of safety against leakage" (see abstract and [0036]), and with room for a plurality of capsules 11 (page 3, lines 26+). One of ordinary skill in the art would have considered it obvious to use the device of Georgii et al for a plurality of leaky fuel rods contained in capsules of the type of Kraus so as to transport a plurality rather than a single one of said capsules. *Motivation* derives from the economy of scale involved in transporting a plurality with a single loading structure rather than with as many as there are capsules; while it would have been obvious to one of ordinary skill in the art to unscrew a plug if said plug provides access to the interior of the capsule to be filled with said leaky fuel.

Placing each capsule containing the leaky fuel rod in a location different from the at least one lading location (claim 23) is inherent in the transport of said capsule (col. 1, l. 55-63), because transportation of the capsules places each capsule in a location different from the original loading location.

Regarding the preamble limitation "subsequent storage of at least 50 years" of claims 23 and 32, the limitation, within the context of a patent on a method with maximum period during which the patent is enforced to be 20 years only, clearly is a limitation of intended use, for which the structure of the prior art provides a basis,

considering that all the structural limitations are arrived at in the combination over which the claim is rejected. In this regard, the MPEP states (MPEP 2111.02):

"The determination of whether preamble recitations are structural limitations or mere statements of purpose or use *"can be resolved only on review of the entirety of the [record] to gain an understanding of what the inventors actually invented and intended to encompass by the claim."* Corning Glass Works, 868 F.2d at 1257, 9 USPQ2d at 1966. If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction".

Finally, the recitation that the loading structure has a plurality of locations each capable of receiving one of the plurality of capsules into which leaky fuel rods are inserted, both with regard to claim 23 and claim 32, is a matter of duplication of parts. In *re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (N.B.: Claims at issue were directed to a water-tight masonry structure wherein a water seal of flexible material fills the joints which form between adjacent pours of concrete. The claimed water seal has a "web" which lies in the joint, and a plurality of "ribs" projecting outwardly from each side of the web into one of the adjacent concrete slabs. The prior art disclosed a flexible water stop for preventing passage of water between masses of concrete in the shape of a plus sign (+). Although the reference did not disclose a plurality of ribs, the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced). Accordingly, no patentable significance can be attributed to said recitation in this particular respect, and hence the combined invention can be extended to include said plurality.

Regarding the step of moving each capsule containing the leaky rod from at least one loading location to another location of the plurality of locations of the loading structure different from the at least one loading location (claim 23), respectively "placing each capsule "in one of the locations of the loading structure" (claim 32), and apart from the difficulties with the indefiniteness of this claim language of claim 23 and claims dependent thereon as pointed out above, it would have been obvious to include the teaching of these limitations in view of Beneck et al (see in particular Figures 3-13), who, in a patent on storage of fuel elements of spent fuel assemblies (see "Background of the Invention", in particular "Technical Field" and "Prior Art"), hence art analogous to Kraus, teach the lowering of fuel elements into quiver 46 whereupon they are rearranged into a closer configuration (col. 6, l. 42+, Figure 9) so as to reduce the volume occupied by them (see "Background of the Invention", col. 1, l. 13+). *Motivation* to include the teaching by Beneck et al of rearranging the fuel elements derives immediately from the resulting advantage of reduced volume occupied by the fuel elements as *taught and suggested* by Beneck et al (col. 1, l. 13+). *Combination* of the teaching by Beneck et al with the combined invention of Kraus, AAPA and Giorgii et al with or without Wachter only requires rearrangement of elements 96 (in the combined invention being the capsules including the leaky fuel rods) in a two-dimensional grid, and hence has reasonable expectation of success. From the above considerations examiner concludes obviousness for inclusion of the teaching by Beneck et al in view of MPEP 2141, section III, rational G for obviousness.

In conclusion, claims 23 and 32 are unpatentable over Kraus et al in view of Applicant's Admission of Prior Art, Georgii et al and Beneck et al, or, in an alternative rejection, in further view of Wachter.

On claim 30: AAPA teaches that during "repair and reconditioning operations on fuel assemblies, leaky rods are taken from the fuel assemblies, with these leaky rods being stored, for example, in temporary manner in a storage structure in the pool" (page 2 of the specification, lines 5-9). Hence the claim is obvious as nothing more is involved than combining prior art elements according to known methods yielding predictable results (MPEP 2141, section III, rationale A).

On claim 31: It would have been obvious to include said limitations in view of Beneck et al, who, in a patent on a storage device (in fact, a quiver) for storage of spent fuel under water, in a pool, (see "Background of the Invention"), hence art analogous to Kraus et al, teach that a structure with an overall cross-section identical to that of a fuel assembly can be used for said storage device (col. 8, l. 47-56). One of ordinary skill in the art would have deemed it utterly obvious, in view of Beneck et al, to employ the already existing and available nuclear fuel assemblies as design for the loading structure because the nuclear fuel assemblies share the design criteria of suitability for loading elongated cylindrical objects and tolerance for radioactivity and water environment. The claim is obvious as nothing more is involved than combining prior art elements according to known methods yielding predictable results MPEP 2141, section III, rationale A).

On claim 34: Kraus et al teach filling an inside space of the capsule with an inert gas (page 12, three final lines, and page 13; Figure 4); while by definition wherever this step is carried out in the combined invention, is a gas filling location.

5. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kraus et al (DE 196 40 393 A1 (see IDS; previously cited), in view of Applicant's Admitted Prior Art (henceforth referred to as "AAPA"; Specification, pages 1-2; previously cited), Georgii (WO03/065380 A1) (previously cited), Wachter (US 4,889,680) (previously cited) and Beneck (US 4,731,219) (previously made of record).

Kraus et al teach a method of packaging leaky fuel rods (col. 1, lines 3-38) for at least one of transport and storage, namely: for transport (col. 1, l. 55-63), each leaky fuel rod containing fuel material in tubular cladding ('Hüllrohr' 12a) (col. 3, l. 20) and being closed at ends of the tubular cladding and presenting a sealing defect (by virtue of being leaky ("schadenhaft", col. 1, l. 24). The limitation on where the leaky fuel rods come from ("each leaky fuel rod coming from at least one fuel assembly") does not limit the method, but instead the intended use of the method. In this regard applicant is reminded that intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art, which in this case it does not, considering that the fuel rod in Kraus is taken from a PWR reactor (col1. 2, l. 33+). In re Casey, 152 USPQ 235 (CCPA

1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963). Furthermore, Kraus et al teach their method to comprise:

making available a capsule 7, *capable* to receive a single leaky fuel rod, and comprising a tubular sheath 8 (col. 3, l. 8-14) and two end plugs 9 and 10 (col. 3, l. 8-14), at least one of the two end plugs configured to be removable [Examiner Note: although the claimed invention is a method, the instant limitation "configured..." limits a structure, i.e., the "at least one of the two end plugs", and as such constitutes a limitation of possible intended use only. Applicant is reminded that intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963). In the end plug 9 a screw pattern is present, and hence the limitation of capability of being removed is met];

placing a loading structure 40 ("Köcher", i.e., quiver) in the pool (col. 4, l. 34+; Figure 4), in a disposition enabling the loading structure to receive at least one capsule with longitudinal axis in vertical position (in the vertical position defined as axial with respect to the fuel assembly), the loading structure having an open top end 53 ("Köcheröffnung, i.e., quiver opening; see col. 4, l. 58+). In response to applicant's traverse that "Kraus does not place the socket 40 in the pool", applicant appears to

misinterpret the sentence in column 4 of Kraus et al as cited by examiner to mean that the water somehow is confined to the interior of the quiver. On the contrary, the "water" in Kraus is of such a spatial extent that underwater operation in a location requires creating under-pressure or vacuum locally and suctioning out the water (col. 1, l. 24-42). "Under water" thus clearly points to an extended body of water. Applicant's "pool" does not further distinguish over any spatially extended body of water, whether in size or in contiguity; should applicant disagree, examiner also notes that it would have been obvious to place the loading structure in the pool in view of Applicant's Admission of Prior Art, teaching that "leaky fuel rods are taken from the fuel assemblies, with these leaky rods being stored, for example, in temporary manner within the fuel pool. That water pool storage is also conventional for long-term storage is witnessed, for instance, by Wachter, who, in a patent on a method of withdrawing spent fuel rods from a nuclear fuel assembly, teaches long-term water pool storage of spent fuel rods as conventional (col. 1, l. 50-59) The limitation is obvious because nothing more is involved than combining prior art elements according to known methods yielding predictable results (MPEP 2141, section III, rationale A for obviousness);

securing on the open top end of the loading structure a device 54 ("Flansch mit Richtvorrichtung", i.e., flange with provision to point or direct) capable of being used for loading a fuel rod into the capsule (Figure 4: col. 4, l. 58 –col. 5, l. 14), said device 54 having an opening ("Durchtrittsöffnungen" 59/60 or any single one thereof: see loc.cit. and col. 5, l. 2-43) and guide device "Richtvorrichtung", including "Richtrollen" (guiding

rollers" 57/58; col. 4, l. 63 – col. 5, l. 14) *capable* of being placed at the opening of device 54;

inserting said leaky fuel rod 12 coming from a fuel assembly (Figure 1 and col. 2, l. 33-59) into an empty capsule 7 (see Figure 1 where fuel rods 6 and capsules 7 are illustrated) in the loading structure at one loading location (by definition the location at which the loading is conducted is the "loading location"), said inserting including: once ensuring an open position of plug 9 of capsule 7, inserting a defective rod into the capsule 7 via a guide device placed at the opening of the loading device (56-58: see Figure 4 and col. 4, l. 58 – col. 5, l. 14), and screwing the plug at the top end of the capsule into or back into place (col. 5, l. 52-55); since the quiver is placed in the pool and the capsule is placed in the quiver while the leaky fuel rod is placed in the capsule the leaky fuel rods are deposited in the pool (hence the limitation on line 3 of claim 33 is met).

Kraus et al do not necessarily teach any of limitations on depositing the leaky fuel rods in a pool, making available a plurality of capsules and corresponding leaky rods as recited and unscrewing a plug of the capsule as a means to ensure the latter is in said open position.

However, it would have been obvious to include all of the other limitations not taught explicitly by Kraus in view of Georgii, who, in a patent document on a container device for shipping (i.e., transport) of radioactive fuel for nuclear reactors (page 1, lines 1-10), hence analogous art, teaches a device 10 for intermediate containment with a "very high degree of safety against leakage" (see abstract and [0036]), and with room

for a plurality of capsules 11 (page 3, lines 26+). One of ordinary skill in the art would have considered it obvious to use the device of Georgii et al for a plurality of leaky fuel rods contained in capsules of the type of Kraus so as to transport a plurality rather than a single one of said capsules. Note that the device of Georgii is also intended for transport ('shipping containers') (see page 9, line 25+). *Motivation* derives from the economy of scale involved in transporting a plurality with a single loading structure rather than with as many as there are capsules; while it would have been obvious to one of ordinary skill in the art to unscrew a plug if said plug provides access to the interior of the capsule to be filled with said leaky fuel.

In the combined invention, moving each capsule containing the leaky fuel rod from the loading location to a different storage location is met because the location of the quiver is not the same as the location of the container device 10 of Georgii, while during the storage of the capsules as capsules 11 in Georgii's device when used as a shipping container "storing and transporting the leaky fuel rods inside the capsules while in the storage location" is met.

Finally, regarding the preamble limitation "subsequent storage of at least 50 years" of claim 33, the limitation, within the context of a patent on a method with maximum period during which the patent is enforced to be 20 years only, clearly is a limitation of intended use, for which the structure of the prior art provides a basis, considering that all the structural limitations are arrived at in the combination over which the claim is rejected. In this regard, the MPEP states (MPEP 2111.02):

"The determination of whether preamble recitations are structural limitations or mere statements of purpose or use *"can be resolved only on review of the entirety of the [record] to gain an understanding of what the inventors actually invented and intended to encompass by the claim."* Corning Glass Works, 868 F.2d at 1257, 9 USPQ2d at 1966. If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction".

Finally, the recitation that the loading structure has a plurality of locations each capable of receiving one of the plurality of capsules into which leaky fuel rods are inserted, both with regard to claim 23 and claim 32, is a matter of duplication of parts. In *re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (N.B.: Claims at issue were directed to a water-tight masonry structure wherein a water seal of flexible material fills the joints which form between adjacent pours of concrete. The claimed water seal has a "web" which lies in the joint, and a plurality of "ribs" projecting outwardly from each side of the web into one of the adjacent concrete slabs. The prior art disclosed a flexible water stop for preventing passage of water between masses of concrete in the shape of a plus sign (+). Although the reference did not disclose a plurality of ribs, the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced). Accordingly, no patentable significance can be attributed to said recitation in this particular respect, and hence the combined invention can be extended to include said plurality.

Regarding the step of moving each capsule containing the leaky rod from at least one loading location to another location of the plurality of locations of the loading structure different from the at least one loading location. Apart from the difficulties with

the indefiniteness of this claim language as pointed out above, it would have been obvious to include the teaching of this limitation in view of Beneck et al (see in particular Figures 3-13), who, in a patent on storage of fuel elements of spent fuel assemblies (see "Background of the Invention", in particular "Technical Field" and "Prior Art"), hence art analogous to Kraus, teach the lowering of fuel elements into quiver 46 whereupon they are rearranged into a closer configuration (col. 6, l. 42+, Figure 9) so as to reduce the volume occupied by them (see "Background of the Invention", col. 1, l. 13+).

Motivation to include the teaching by Beneck et al of rearranging the fuel elements derives immediately from the resulting advantage of reduced volume occupied by the fuel elements as *taught and suggested* by Beneck et al (col. 1, l. 13+). *Combination* of the teaching by Beneck et al with the combined invention of Kraus, AAPA and Giorgii et al with or without Wachter only requires rearrangement of elements 96 (in the combined invention being the capsules including the leaky fuel rods) in a two-dimensional grid, and hence has reasonable expectation of success. From the above considerations examiner concludes obviousness for inclusion of the teaching by Beneck et al in view of MPEP 2141, section III, rational G for obviousness.

In conclusion, claim 33 is unpatentable over Kraus et al in view of Applicant's Admission of Prior Art, Georgii et al, Wachter, and further in view of Beneck et al.

6. **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kraus et al, Applicant's Admitted Prior Art, Georgii et al, Beneck et al and , in an alternative in further view of Wachter as applied to claim 23 above, and further in view of Shomura et al (JP-2000111682A). As detailed above, claim 23 is unpatentable over Kraus et al in

view of Applicant's Admission of Prior Art, Georgii et al and Beneck et al, or, in an alternative rejection, in further view of Wachter. One of ordinary skill in the art would have deemed it utterly obvious, in view of Beneck et al, to employ the already existing and available nuclear fuel assemblies as design for the loading structure because the nuclear fuel assemblies share the design criteria of suitability for loading elongated cylindrical objects and tolerance for radioactivity and water environment. Beneck et al do not disclose the particular components such as nozzles, tie-bars, spacer plates with openings capable of holding said capsules and tie-bars as recited. However, an example of a fuel assembly, evidently not as structure being an inventive part of the invention, but rather disclosed as the skeleton of "a fuel assembly for a pressurized water nuclear reactor" is provided by applicant as AAPA (pages 8-9 of the specification; Figure 1), given reference 1, disclosing top nozzle 4 (meeting "handling top nozzle"), bottom nozzle 5 (meeting "bottom nozzle") both extending transversely (see Figure 1; any transverse extent meets the claim limitation), the nozzles being assembled to each other by longitudinally-extending tie-bars 23, together with a plurality of transversely-extending spacer plates 25 distributed in the longitudinal direction of the loading structure 20 and each comprising an array of openings serving to pass and hold a respective capsule 8, some (other) openings having engaged therein the tie-bars (23). AAPA does not disclose the recited "first location" as of the prior art. However, it would have been obvious to include said first location in view of Shomura et al, who, in a patent document on a fuel assembly loading area, hence art analogous to the fuel assembly by AAPA, teach a first location as cited in the form of a rectangular (fuel

assembly) loading area 11, evidently defining a loading structure, in a vicinity of a corner ("corner part") 11a (see front figure and Abstract). Finally, the shape of the cross-section of the fuel assembly in AAPA, and hence of the loading structure as taught by Beneck et al is square; even *arguendo*, it has long been held that In the absence of a convincing argument that a particular configuration or shape is significant or anything more than one of numerous configurations a person of ordinary skill in the art would find obvious said configuration or shape does not carry patentable weight. See *Graham v. John Deere Co.*, 383 US 1, 148 USPQ 459.

Response to Arguments

7. Applicant's arguments filed October 19, 2010, have been fully considered but they are not persuasive of patentability. Although the rejections under 35 U.S.C. 112 of record in the prior Office action have been overcome by amendment, the substantial amendments to the independent claim 23 introduces new matter, as explained overhead in section 2. Furthermore, a new search necessitated by the substantial amendment to all independent claims, has revealed that the claim limitations so introduced are obvious over Beneck et al as made of record previously: see sections 4-6 above, which are herewith included by reference in their entirety in response to Remarks by applicant.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHANNES P. MONDT whose telephone number is (571)272-1919. The examiner can normally be reached on 8:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JOHANNES P MONDT/
Primary Examiner, Art Unit 3663

January 3, 2011.